Access Management Plans

Paper
Slides

11A. Applying Context Sensitive Highway Design to Achieve Access Management

Tim Bevan, CH2M Hill

Paper
Slides

11B. Access Management in the Planning Environment, Lane County Interchanges

Nick Arnis, Oregon DOT

Paper
Slides

11C. Land Development and Access Management Strategies for Interchange Areas

Laurel Land, University of South Florida

Tuesday August 15, 2000 – 8:00 AM – 9:30 AM
Track 1 - Administrative

National Conference on Access Management

ABSTRACT

Topic of Paper and Presentation:

"Applying Context Sensitive Highway Design to Achieve Access Management Improvements."

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Kirk McKinley / City of Shoreline

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Abstract of Presentation:

Context-sensitive design is an interdisciplinary approach to developing a transportation project that takes into consideration not only the traditional parameters of traffic capacity and geometric standards, but the entire range of issues and impacts related to community stakeholders. Context-sensitive design represents a new evolution in community and agency involvement where citizens and affected agency staff work alongside planners and engineers to create a solution that best fits with community goals and values. The FHWA and state departments of transportation as well as local governments across the country are embracing this new approach in order to arrive at designs that are compatible with communities and consider the diverse interests associated with roadway projects.

CH2M HILL was selected by the City of Shoreline to develop a new multimodal corridor design for a 3-mile stretch of urban arterial (signed State Route 99) within the City. On the Shoreline project, we chose to use the context-sensitive design practice in order to more efficiently and effectively deliver a preferred alternative that would have support and constructability. One of the key goals of the project from both the city's and the state department of transportation's point of view was to address access management on a segment of highway that experiences some of the highest accident rates in the state and suffers from a general lack of access controls.

This paper and presentation will provide a case example of the Shoreline experience. It will illustrate how context-sensitive design facilitates "thinking beyond the pavement" to accomplish access management treatments on roadway design projects. It presents a new design approach where citizens and agency representatives forge a cooperative team that achieves a level of acceptance and excellence in the roadway design that provides lasting value to the community.

Applying context sensitive design to achieve access management improvements

FOURTH ANNUAL NATIONAL CONFERENCE
ON ACCESS MANAGEMENT

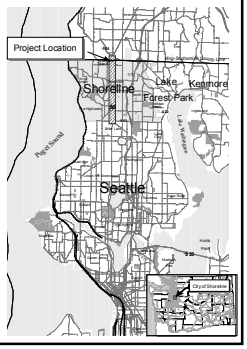
Tim Bevan and Todd Slind/ CH2M HILL

Presentation outline

- Aurora Avenue project background
- Context sensitive design process
- Examples of access management planning tools

Project Background

- Three miles,
  5 lanes with TWLTL
- Traffic congestion
- High accident rates
- No sidewalks
- Poor aesthetics
- Activist community



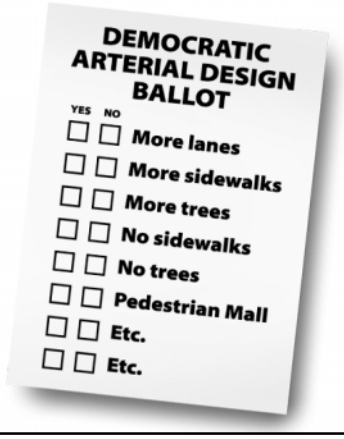
Competing objectives

- Downtown commercial street vs. regional arterial
- Business access vs. traffic safety
- Auto-oriented vs. multimodal
- Revitalization/image vs. neighborhood impacts
- Traffic capacity vs. neighborhood impacts
- Sidewalks vs. loss of parking

The dictator approach

Worked well for Moscow
Transportation System design

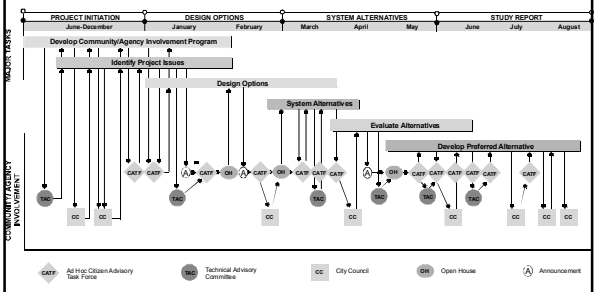
Vote on it?



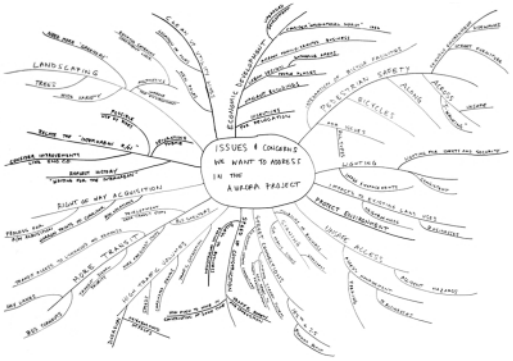
Context-Sensitive Highway Design

- *"Thinking beyond the pavement"*
- Asks about the *purpose and need* of a transportation project, and then *addresses equally:*
  - safety
  - mobility
  - preservation of
    - aesthetic
    - historic
    - environmental
    - and other community values
- Context-Sensitive design involves a *collaborative, interdisciplinary* approach in which *citizens and agencies* are part of the design team.

Design Study Approach



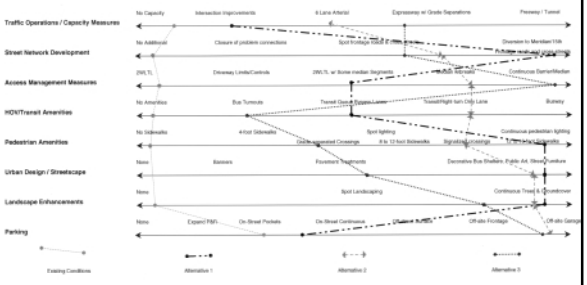
Identification of Design Issues



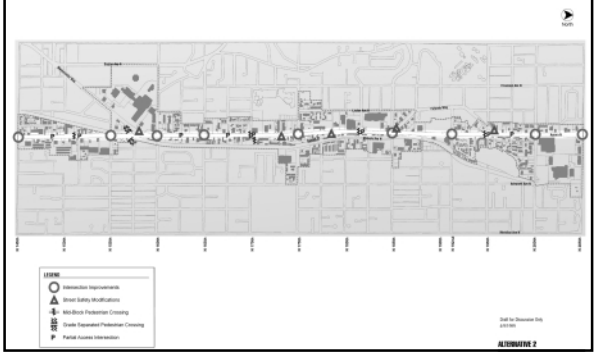
Design Issues and Options Matrix

CORRIDOR STUDY ISSUES & CONCERNS	1. Intersection/Signal Improvements	2. Overhead Utility Relocation/Undergrounding	3. Street Network Development	4. Illumination Improvements	5. Right-of-Way Information	6. Construction Traffic Control	7. Access Management Measures	8. HOV/Transit Amenities	9. Environmental Considerations	10. Urban Design/Streetscape	11. Landscape Enhancements	12. Pedestrian & Bicycle Facilities
	DESIGN OPTION INVESTIGATIONS											
A. Pedestrian & Bicycle Access/Safety				✓		✓	✓	✓		✓	✓	✓
B. Congestion/Capacity	✓		✓		✓	✓	✓	✓	✓			
C. Aesthetics/Image		✓				✓				✓	✓	
D. Traffic Safety	✓		✓	✓		✓	✓					✓
E. Urban Design/Development		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F. Construction Traffic			✓			✓						
G. Landscaping										✓	✓	✓
H. Environmental Quality	✓					✓			✓			
I. Traffic Access/Circulation	✓		✓			✓	✓					
J. Neighborhood Traffic	✓		✓			✓			✓			
K. HOV/Transit	✓		✓	✓		✓	✓	✓		✓	✓	✓
L. Security				✓				✓		✓	✓	✓
M. Right-of-way	✓	✓	✓		✓		✓			✓		

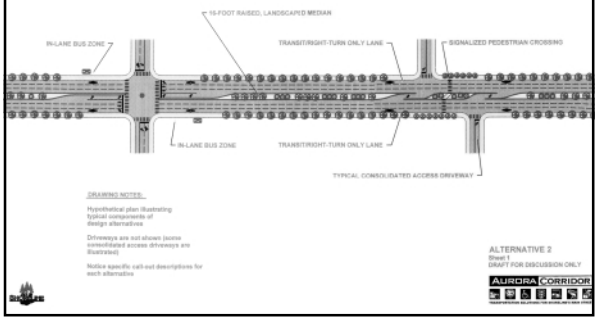
Alternatives Development



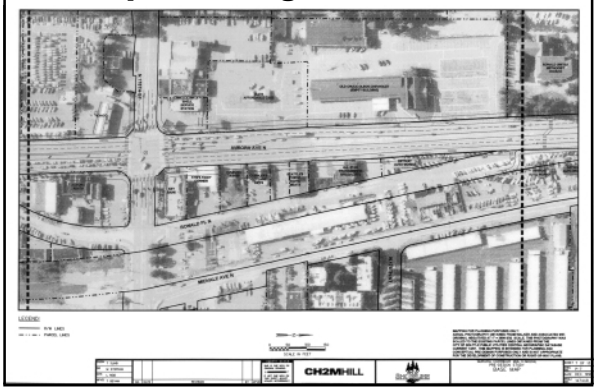
Opportunities Diagram



Conceptual Plan Drawing

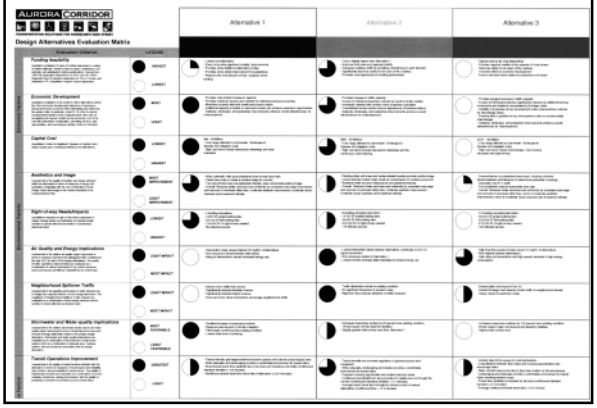


Conceptual Design Illustrations



Project Alternatives

Alternatives Evaluation



Preferred Alternative

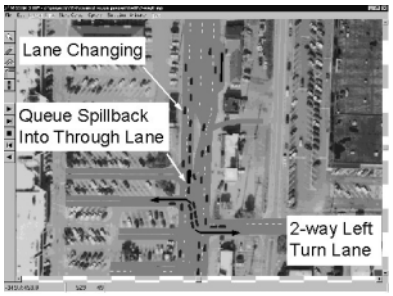
Elements of preferred alternative

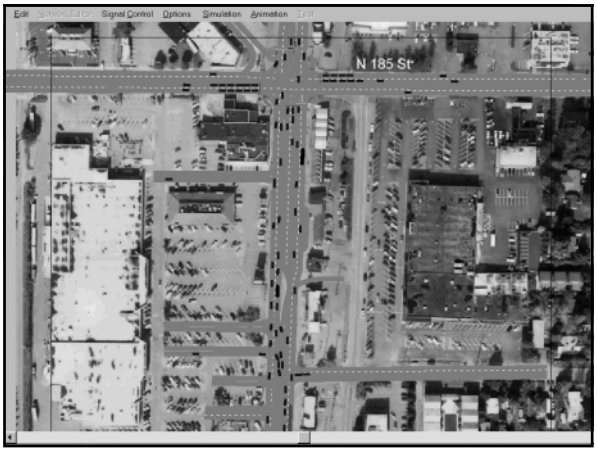
- Intersection Capacity
- Business Access/Transit Lanes
- Pedestrian Crossings
- Safety/Access Management
- Left/U-turn lanes
- 12-foot wide Sidewalks
- Transit Signal Priority
- Landscaping
- Public Art
- Water Quality Treatments

Resolving access management issues

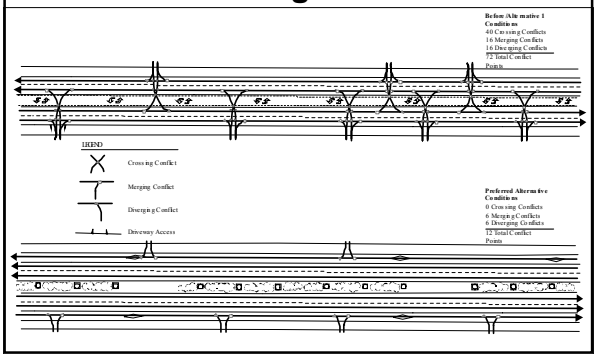
- Understanding the problem
  - Video tape
  - VISSIM
  - Conflict point diagrams
  - Data and statistics
- Misperceptions and compromises
  - Space needed for medians
  - Access breaks
  - Site access opportunities

Visual Traffic Simulation

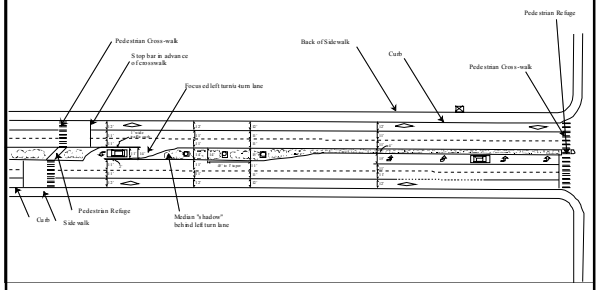


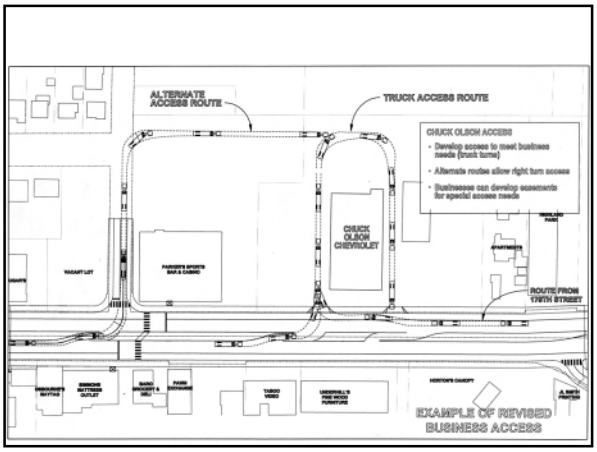


Conflict Point Diagram

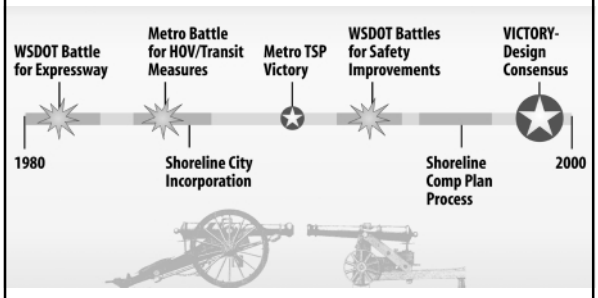


Design for Minimum Median Width





Shoreline/Aurora Avenue - Battle History

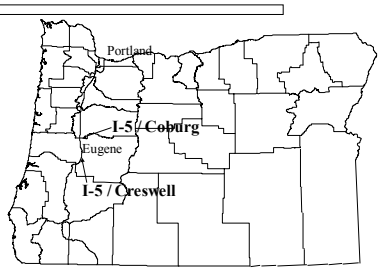


Access Management in the Planning Environment Case Studies in Lane County, Oregon

4th National Access Management Conference
Portland, Oregon
August 2000

Presented by Nick Arnis, Oregon DOT, Region 2 Planner

Interchange Locations



Presentation

- **Review I-5 Interchange Plans in the Cities of Coburg and Creswell**
- **Critique and evaluation of the plan process in relation to Oregon Department of Transportation Access Management Policies**

Interchange Plan Objectives

- **Involve the public**
- **Adopt an interchange refinement plan at the local level**
- **Consistency with Oregon Highway Plan Access Management Standards**
- **Create short and long term implementation strategies**

The Process

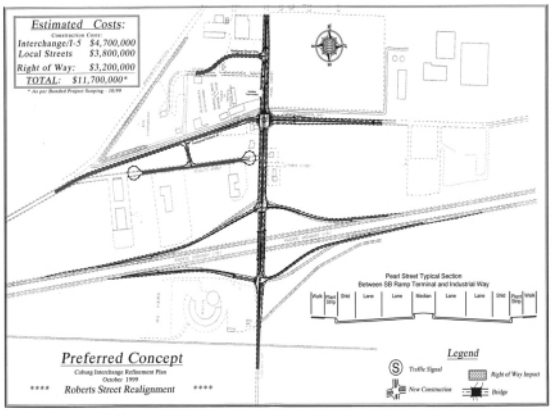
- **Conduct public involvement**
- **Define issues and problems**
- **Create possible solutions**
- **Select a preferred alternative**
- **Adopt and implement the plan**

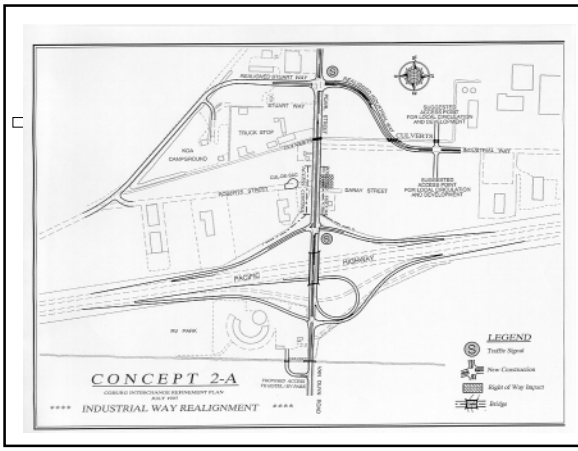
I-5/Coburg Current Conditions

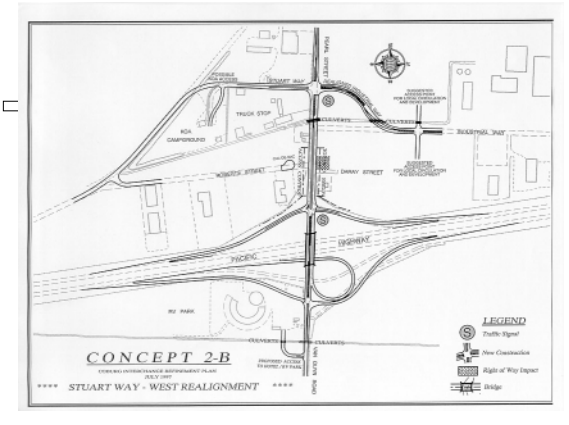
I-5/Coburg Interchange Issues

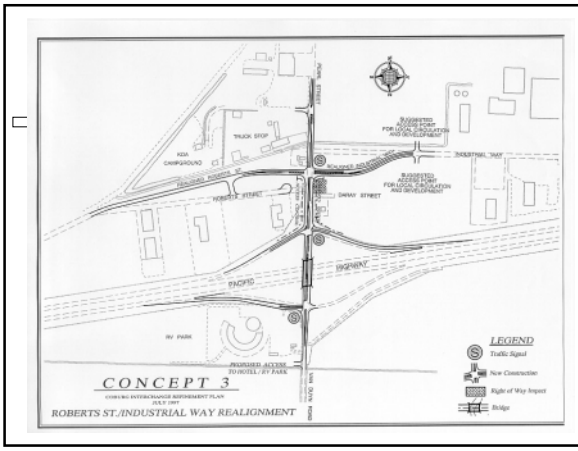
- **Employment growth and large vacant parcels**
- **Meeting ODOT access standards**
- **High percentage of truck traffic**
- **Neighborhood concerns**

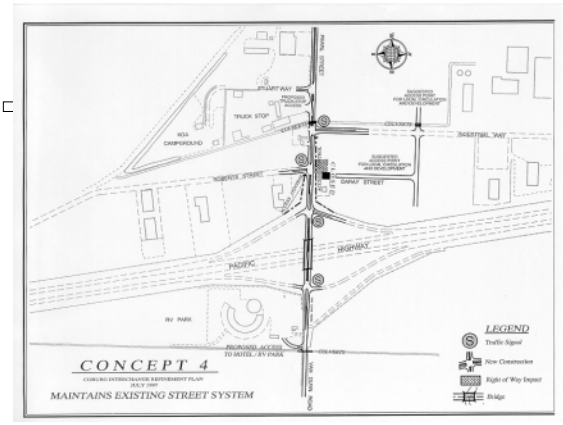
I-5/Coburg Future Conditions











I-5/ Coburg Outcome

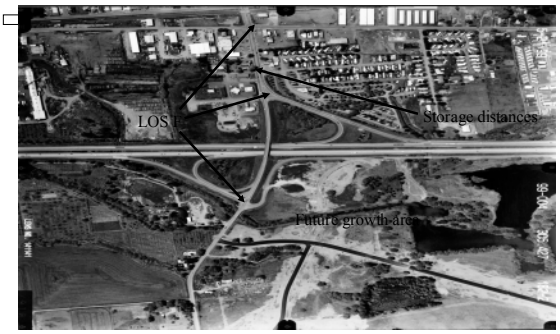
- **Facilitation process with neighborhood to resolve issues**
- **Reduced access standard but safety and operations maintained**
- **Long and short range preferred alternative selected**

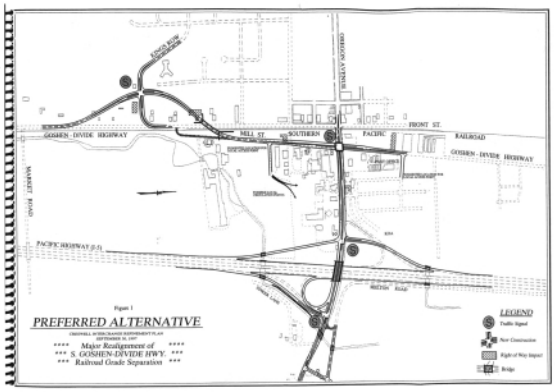
I-5/Creswell Current Conditions

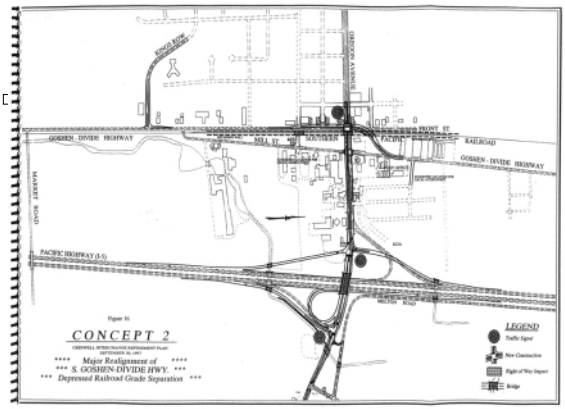
I-5/Creswell Interchange Issues

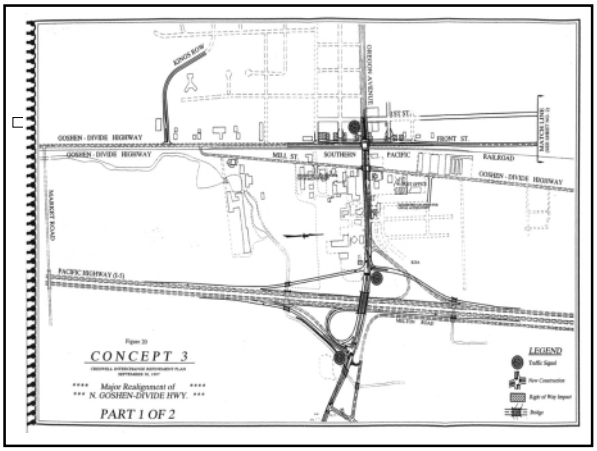
- **Large vacant parcels**
- **Meeting ODOT standards**
- **Access to existing parcels**
- **Impacts and cost**

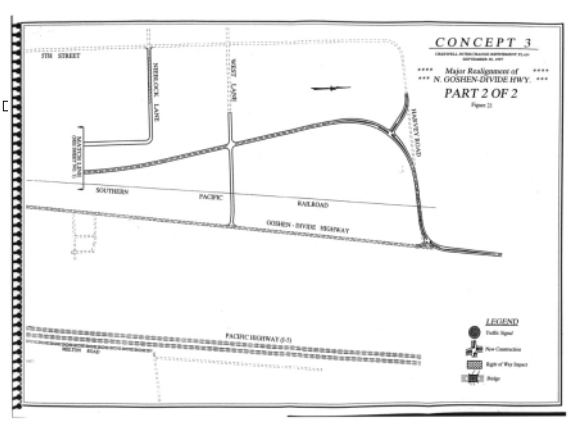
I-5/Creswell Future Conditions











I-5/ Creswell Outcome

- **Preferred alternative adopted but alignment ROW not protected**
- **Preferred alternative very costly**
- **Adopted a plan the public was willing to support**

Summary and Lessons

- **Engage the public to solve the problem**
- **Simplify technical policies and standards**
- **Seek compromises but maintain safety and operations**
- **Create short term solutions that lead to long term goals**

LAND DEVELOPMENT AND ACCESS MANAGEMENT STRATEGIES FOR INTERCHANGE AREAS

by Laurel A. Land, AICP

Interchanges are a vital link in the transportation system. They connect surface streets and freeways, and may be required to handle very high traffic volumes during peak travel periods. They are also a critical interface between the freeway and the surface street, providing a transition from high-speed travel to lower speeds.

An interchange can have a substantial impact on the intensity of land development in the surrounding area. It provides accessibility, which increases land value and encourages development. When land development and access are not properly managed, it often results in safety hazards and interferes with the efficient flow of traffic through and around the interchange. Too many choices (such as merge, through, and turn lanes, traffic signals, driveways, and median openings) create confusion, causing drivers to slow down or make erratic movements. This can impair accessibility to businesses and result in the need for costly retrofit projects. Bob Layton, Professor of Engineering at Oregon State University, asserts that the "interchange area is an extension of the freeway. … [It] presents conditions that are complex, unexpected and significantly different from other nearby surface street conditions." Perhaps if we thought differently about interchange areas, we could plan them more effectively.

The Florida Department of Transportation (FDOT) asked the Center for Urban Transportation Research (CUTR) at the University of South Florida to study land development and access management in interchange areas. The project reviewed policies and practices of local and state governments, identified issues and problems in managing interchange area development, and sets forth strategies for improvement.

The study concludes that it is critical to create an uncluttered environment in the interchange area, with consolidated signage, median controls, and clearly identifiable access points. One way to achieve this is through the development of local access roads, as an alternative to successive driveways on the arterial. Access roads reduce driver confusion and improve traffic flow and safety.

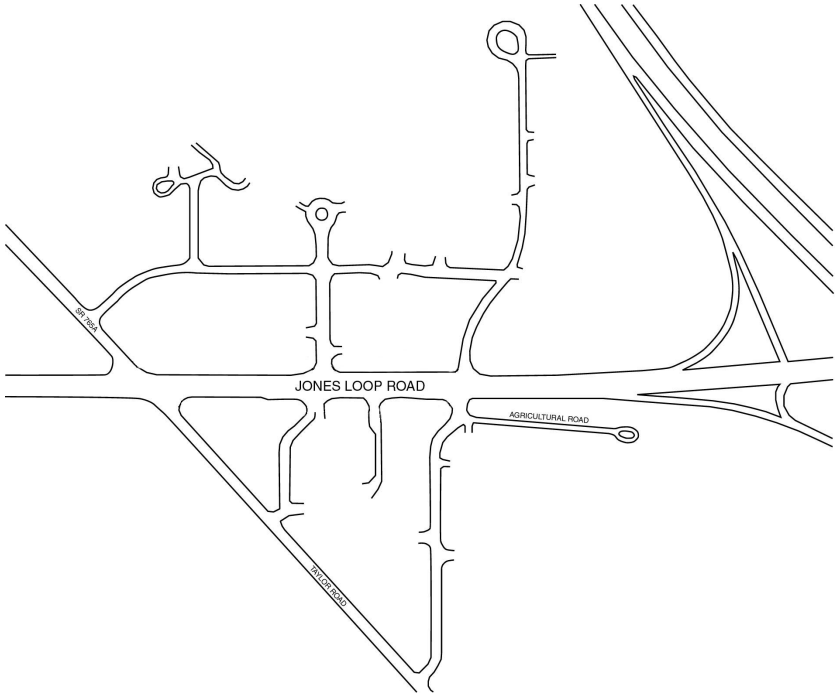
Local policymakers are concerned that access controls would impede development. The study found, however, that effective planning and access management helps, rather than hinders, the development potential of interchange areas. Local access roads open up more land for development, provide ease in accessing property, and preserve safety on the surrounding roads, thereby increasing development potential and encouraging more efficient land use.

The interchange at I-75 and Jones Loop Road in Punta Gorda, Florida, is an example of how access roads can be used to direct development while preserving the function and safety of interchange areas (Figure 1). The access road, as shown, is a consolidated drive serving commercial development that includes a hotel, restaurant, trucking facility, and other commercial uses. Figure 2 shows how the local roads, interparcel access,

and connectivity with side streets maximize the accessibility of businesses, while channeling turning movements off the arterial and away from interchange ramps.

Figure 1
Access Road in Punta Gorda, Florida

Figure 2
Interconnection of Access Roads to Local Roads



When considering a new interchange or modification to an existing one, it is important to look beyond capacity analysis and place greater emphasis on access management measures. Most access management classification systems require varying degrees of access separation at interchanges, according to the extent of urbanization and whether the cross roads are two-lane or four-lane facilities. While this may work in some states, Florida's rapidly-increasing population and its booming tourism can turn a rural interchange area into a development frenzy in a few short years. If development is not anticipated, and the interchange is designed for a continuing rural environment, problems will result. High standards provide an environment for economic activity to flourish, while maintaining a safe and efficient flow of traffic. For these reasons, it is suggested that signalized intersections should be separated from interchange ramps by at least 1320 feet, and access connections should not be allowed within 660 feet of a ramp.

Access management in interchange areas can be accomplished through advance planning and a range of regulatory and non-regulatory techniques. This requires cooperation with property owners, developers, and local governments. Regulatory methods require certain actions, while non-regulatory methods encourage or drive desired actions. Non-regulatory techniques are subtle in their direction of development, often taking the form of agreements or incentives. Using a broad range of powers is more likely to accomplish a desirable outcome.

The need for improved access management is clear, but the separation of state and local jurisdiction has made it difficult to accomplish. No single land use control or governmental entity can achieve the desired results. Effective interchange area management requires a combination of techniques involving land use/zoning, sub-division regulation, sign control, access management, and intergovernmental coordination. Coordination has always been (and continues to be) the most difficult part of the process. This may be due, in large part, to the involvement of many players and political interests.

Some states (California, Minnesota, Oregon, and Arizona are the most noteworthy) have adopted legislation that fosters intergovernmental coordination through joint exercise of powers. This enables two or more agencies to combine powers under a joint authority. The resulting authority has availability to the powers of all representative agencies. Therefore, an authority established to manage interchange areas could become a special purpose public entity with the powers of transportation and land use planning, implementation, and operations. This type of authority offers powers to local public and private entities, independence, and a high degree of permanence. A written agreement governs operations and specifies the terms and conditions for decision-making.

There are many ways to accomplish the goal of free-flowing interchange areas, but it is essential that we begin to view them as a vital link in our transportation and economic systems. Interchanges affect land use, land values, development, employment opportunities, travel patterns, and taxes, in turn affecting local and state governments, private citizens, landowners, motorists, and other taxpayers. Therefore, everyone has a stake in improved management of interchange areas, which ultimately preserves safety and quality of life.

A copy of the final report can be found at: www.cutr.eng.usf.edu/research/access_m/publicat.htm. Or, for further information contact Laurel Land, AICP, land@cutr.eng.usf.edu, 813-974-1446, or Kristine Williams, AICP, kwilliams@cutr.eng.usf.edu, 813-974-9807.